WHAT IS CLAIMED IS:

1.   A method of determining radioactive nuclides
comprising:

inputting a data of pulses incident to an α-ray
detector in a computer;

obtaining and plotting a time distribution of the
incident pulses by using a very short time measuring timer;

obtaining from the plotted time distribution of the
incident pulses, the following whole generating probability
P(t) from a parent nuclide to a disintegrated product
thereof by fitting the linear originated in a random event
corresponding to the background and the non-linear
originated in a correlated event of the parent nuclide-
disintegrated product by using least squares method

$$P(t) = \{\alpha_t \cdot \exp(-\lambda t) \cdot \lambda + C\} \, dt$$

wherein,

> P(t): the probability of starting from an optional
> pulse and expiring at the event within a very short
> time dt after t milliseconds,
>
> $\lambda \, dt$: the probability of generating the correlated
> events within a very short time dt after t
> milliseconds,
>
> C dt: the probability of generating the random events
> within a very short time dt after t milliseconds,

α_t: the probability that the events are caused by the correlated events;

subtracting the random events portion from the P(t) to thereby extract the correlated events portion; and

dividing the extracted correlated events portion by the measured time, the amount of supplied sample and the counting efficiency to thereby obtain the radioactivity per unit.

2.   A method of determining radioactive nuclides comprising:

determining nuclides, which are unnecessary for the measurement by the method described in claim 1, on the basis of the half-life thereof and the time intervals of the incident pulses;

removing the thus determined nuclides from the energy spectra of objective nuclides to thereby lower the background and reduce the detection limit value of the objective nuclides; and

detecting the objective nuclides by using pulse-height discrimination.